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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,593	10/10/2001	Mark S. Crowder	3123-379	8756

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EXAMINER

KIM, PAUL D

ART UNIT

PAPER NUMBER

3729

DATE MAILED: 06/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,593

Applicant(s)

CROWDER ET AL.

Examiner

Paul D Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2004.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13-29 and 31 is/are pending in the application.
 4a) Of the above claim(s) 22-29 and 31 is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 13-21 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

1. A request for continued examination under 37 CFR 1.114 was filed in this application after appeal to the Board of Patent Appeals and Interferences, but prior to a decision on the appeal. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 1/9/2004 has been entered.

Claim Objections

2. Claims 1-12 and 22-31 are objected to because of the following informalities:

Re. Claims 1-12: The claims 1-12 and 30 had been cancelled.

Re. Claims 22-29 and 31: The status of the claims 22-29 and 31 should be withdrawn. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 13, 15 and 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. (US PAT. 5,879,578) in view of Tsujino et al. (US PAT. 6,185,075).

Chung et al. teach a method of assembling a disk drive comprising steps of: providing an actuator arm (146) having a proximal end and a distal end; providing a suspension arm (144) having a proximal end and a distal end; fixing a swage plate (160) to the proximal end of the suspension arm, the swage plate including a swage boss (162) extending therefrom, the swage boss having an inner surface (168) that contacts a swage ball during swaging, and the swage outer surface (170) not contacted by the swage ball during swaging as shown in Figs. 5a, 5b and 6; and attaching the suspension arm to the actuator arm by swaging the swage boss to an opening formed in the distal end of the actuator arm (col. 1, line 54 to col. 2, line 45 and col. 4, lines 11-67).

However, Chung et al. do not disclose a film lubricant at least the outer surface of the swage boss. Tsujino et al. teach a process of fabricating an actuator arm assembly including a pivot (18 as shown in Fig. 1) (or equivalent with a swage plate (77) and a swage boss (71) as shown in Fig. 4) using a lubrication oil in its inner bearing (such as an inner surface of the actuator arm (55) and the outside of the swage boss (71)) in order to prevent from a damage a head/suspension assembly by a friction force during swaging (see also col. 1, lines 30-65 and col. 5, lines 7-52). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify a facilitating swaging process of Chung et al. by using a lubrication oil to

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the outside of the swage boss as taught by Tsujino et al. in order to prevent from a damage a head/suspension assembly by a friction force during swaging.

As per claim 15 Chung et al. teach a process of applying the lubricant by immersing the swage ball into a dilute solution containing the lubricant as disclosed in col. 4, lines 39-53. Therefore, it would be obvious to apply the lubricant to the pivot of Tsujino et al. by immersing the pivot into a dilute solution containing the lubricant in order to prevent oxidation or contamination of the surface of the pivot.

As per claims 18-21 Chung et al. also teach that the lubricant is a fluorocarbon. Although Chung et al. does not disclose expressly characteristics of the lubricant such as a polymer film, it would have been an obvious matter of design choice to a person of ordinary skill in the art to modify the lubricant as recited in the claim because applicant has not disclosed that the polymer film is used for a particular purpose, or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected applicant's invention to perform equally well with the fluorocarbon to reduce a friction. Therefore, it would have been an obvious matter of design choice to modify the lubricant of the fluorocarbon to obtain the invention as specified in claims 18-21.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. in view of Tsujino et al., and further in view of Ghose et al. (US PAT. 5,051,855).

Chung et al., modified by Tsujino et al., teach all of the limitations as set forth above except a film lubricant on the opening in the distal end of the actuator arm prior to the attaching process. Ghose et al. teach a process of making an actuator arm, which is formed of a self-lubricating polymer or other lightweight self-lubricating

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material (equivalent with the film lubricant on the actuator arm prior to assembling process) in order to insure a lubricated interface between the teeth (30) on the actuator head and the teeth on the drive shaft (28) (see also col. 2, lines 34-40 and col. 4, lines 13-29). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify an actuator arm of Chung et al., modified by Tsujino et al., by using an actuator arm formed of a self-lubricating polymer or other lightweight self-lubricating material prior to assembling process as taught by Ghose et al. in order to prevent weariness on the gear.

6. Claims 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al. in view of Tsujino et al., and further in view of Fisher et al. (US PAT. 4,215,480).

Chung et al., modified by Tsujino et al., teach all of the limitations as set forth above except a process of applying the lubricant by spraying or vacuum deposition. Fisher et al. teach a method of making a measuring instrument including a process of applying a lubricant between surfaces by either spraying or vacuum deposition to give good adhesion between the surfaces (col. 8, lines 63-67). Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify a facilitating process of applying a lubricant to the swage ball of Chung et al., modified by Tsujino et al., by applying the lubricant to the surfaces by either spraying or vacuum deposition as taught by Fisher et al. for the purpose of optimizing the adhesion between the surfaces.

Response to Arguments

7. Applicant's arguments with respect to claims 13-21 have been considered but are moot in view of the new ground of rejection.
8. Applicant argues that the prior art of record fails to disclose the claimed invention such as applying the lubricant at least outer surface of the swage boss. Examiner traverses the argument that Tsujino et al. teach a process of fabricating an actuator arm assembly including a pivot using a lubrication oil to the outside of the swage boss in order to prevent from a damage a head/suspension assembly by a friction force during swaging.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul D Kim whose telephone number is 571-272-4565. The examiner can normally be reached on Monday-Friday between 8:00 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Paul D Kim
Examiner
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